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UNITED STATES DEPARTMENT OF AGRICULTURE

BUREAU OF ENTOMOLOGY

FOREST INSECT INVESTIGATIONS

ANNUAL INSECT CONTROL REPORT

1939

REGION 4

6 34

RLF

Indexed

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CONTROL, R-4
Insect
(Annual Report)

March 6, 1940

Chief, Forest Service,

Washington, D. C.

Dear Sir:

We are transmitting herewith copy of Form R-4, I.C.1 summarizing the control work done in this Region during 1939. We will submit shortly the usual photostatic reductions for individual Forests.

In addition to the information given in the control work summary we have the following to report.

General.

The highlights of the 1939 insect situation are the following:

1. Outbreak of epidemic proportions of Dendroctonus monticolae on the Wasatch after an effective reduction completed in 1937. A four to one build-up in 1938 and six to one in 1939 is reported on the Blacks Fork unit.

2. Survey and continuation of control measures against Dendroctonus ponderosae on the Powell. Survey indicates about 12,000 trees to treat. A 100 percent clean-up is expected before the next flight.

3. Survey and control measures on the Charleston Mountain Division of the Nevada against attacks of D. ponderosae, barberi and convexifrons. High recreational values are at stake and therefore endemic attacks in ponderosa pine are being controlled with a reduction in epidemic being attempted in stands from which infiltration takes place.

Copy for information Mr. Favour

4. Major decrease in the epidemic of D. monticolae on the Green River drainage of the Wyoming. Seventy (70) percent decrease in number of new attacks for fall of 1939 as compared with fall of 1938.

D. monticolae.

Except for the situation on the Wasatch the situation is favorable. Due to control measures and other factors the situation on the Green River drainage of the Wyoming is favorable though there are still a number of "hot spots" which need reduction. Due to lack of P. & M. funds control will be effected entirely by use of CCC and ERA labor. A total of 1,918 trees are recommended for treatment.

Wasatch.

During the years 1931-1936, inclusive, control measures were taken on the Wasatch, Ashley, and Uinta directed against a bad epidemic of D. monticolae. A total of 141,932 trees were treated during these years. The areas concerned were largely the lodgepole pine areas from the west side of the Ashley through the north and west sides of the Wasatch to and including the north end of the Uinta. Surveys at the end of the job repeated in 1937 showed full control had been effected. No survey, therefore, was recommended for 1938. In 1939, however, observations showed groups of red tops on the Blacks Fork area and the Kamas, Duchesne, and Rock Creek areas. A survey was made which indicated a four to one build-up in 1938 and a six to one increase in 1939 on the Blacks Fork area with an estimated total of 11,000 trees to treat. The epidemic on the Kamas, Duchesne, and Rock Creek units is not as virulent as that on Blacks Fork but a total of 8,500 trees is recommended there for treatment.

Check-up by extensive surveys by the local force on the Ashley indicated no epidemic infestation there as yet. The Uinta treated a total of 64 trees on the area adjacent to the Wasatch with a few trees remaining to be treated in the spring. A more detailed spring check-up on the west end of the Ashley has been asked of the Bureau of Entomology and Plant Quarantine.

Plan of Work.

Due to the lateness of the season at the time of completion of the survey no attempt was made at control of the Wasatch epidemics at that time. Detailed plans were made for spring work and a spotting crew was sent in to the Blacks Fork area where the "hits" are hidden and where a 100 percent careful spotting job will be necessary. Some 2,600 acres of the more lightly infested area were spotted during the month of December and a total of 518 trees found.

The three units on the Wasatch will be worked in the spring as follows:

1. Blacks Fork: ERA labor supplemented with P. & M. funds.

2. Kamas Unit:

a. Provo River, Duchesne and Mirror Lake subunits to be covered by CCC crews supplemented with P. & M. funds.

b. Beaver Creek and Shingle Creek by P. & M. crews.

3. Grandaddy Lakes Unit: To be covered by P. & M. crews. Priority will be given the Blacks Fork unit as it has the heaviest infestation and has shown the heaviest build-up and is, therefore, the major threat. Second on the list will be the Kamas unit in order to take fullest advantage of CCC labor. The attempt will be made to also work the Grandaddy Lakes unit recognizing prior claims on funds of (1) Blacks Fork unit and (2) Kamas unit.

Other Forests.

Infestation by D. monticolae on other Forests is largely endemic although some increases are reported. The Cache states "All infested trees of the D. monticolae were definitely in the endemic stages." The Sawtooth states "Infestation in lodgepole pine and limber pine to a limited extent is general over the Forest but more so on ranger districts 2 and 3. The infestation which was so bad a few years ago, however, has largely subsided and is now considered only in the endemic stage. But very few new attacks are observed and these not very healthy". The Caribou states "The lodgepole pine infestation is decidedly endemic with the exception of a small area in Rattlesnake Canyon, section 7, T. 10 S., R. 44 E. This infestation is in an area of rather old, inferior timber, previously weakened from other causes. The attack has reached epidemic proportions, the current hits occurring in groups of from five to 20 trees. The infested area is not over 40 acres in extent and approximately 10 percent of the mature trees in the stand have been hit. The infestation is still localized but will spread to sizeable areas of lodgepole to the south and east". The Teton states "Minor attacks of dendroctonus are present practically throughout the Forest particularly in alpine and subalpine types. In the northern portion of the Forest near the Park boundary and along the divide between Spread Creek and the Gros Ventre River the attacks are spreading quite noticeably. In other portions of the Forest we believe the white (mountain) pine beetle attacks are somewhat less general than was the case a year ago. With the exception of these two areas, new attacks are limited in

extent to a few acres in each drainage and apparently in a number of places to only a few individual trees". It would appear that in the Forests in the abandoned Yellowstone Project the history of the southwestern Idaho Forests is being repeated with the epidemic dying down generally and with the exception of a few hot spots.

The Minidoka reports "The lodgepole infestations some of which were given control measures a year ago, in spots are again increasing. However, as most of the remaining lodgepole stands are of poles, probably no alarming infestations will occur". The situation on the Minidoka will be carefully watched.

D. ponderosae.

The large job in control of the Black Hills beetle is on the Powell although some work is necessary on the Ashley, Nevada, and Fishlake in the ponderosa pine stands. A clean-up on all these areas is expected this spring.

1. Powell.

In 1936, in connection with projects in the Bryce Canyon National Park, projects designed to control the infestation on the Powell were started. It first was thought that careful clean-up and maintenance of a strip bordering the Park would suffice. In 1936, therefore, a total of 2,280 trees were treated in this territory. In 1937, 3,303 trees were treated. This procedure was not satisfactory and in 1938 treatment of more area was attempted and 4,664 trees treated. In 1939 it was decided that the entire East Fork of Sevier should be treated and a survey was made showing a total of 11,000 trees to treat. It should be stated here that the survey indicates a clean-up on the strip adjacent to the Park was effected.

Control work has been under way since late September and it is anticipated that the 11,000 trees will have been treated by June 1940. A total of 3,038 was treated as of January 1. It is expected that this will effect a clean-up of the infestation and that beginning with the fall of 1940 light maintenance work only will be needed.

2. Nevada.

The infestation on the Nevada is confined largely to the Charleston Mountain Division. This is an isolated range about 30 miles distant from Las Vegas, Nevada. It makes a very attractive recreational area for the inhabitants of Las Vegas and there are a great many summer homes and recreational facilities in the ponderosa pine canyons. It is apparent that the loss of a single tree here and there amongst the summer homes

is considered a serious matter. For this reason it has been necessary to undertake control of an endemic infestation which otherwise would perhaps be questionable.

It early was apparent that to reduce to the minimum the losses in ponderosa pine in the heavy recreational areas, a heavy reduction must be made in the large "hot spots" in limber and bristlecone pine stands above the ponderosa pine belt from which a constant, heavy infiltration was taking place.

A survey of the entire division was made in the fall of 1939 and a total of 760 trees in "hot spots" is recommended for treatment. The report shows a total of 2,728 new attacks on the entire division but report that but a few scattered infested ponderosa pine trees were found in the recreational areas. A total of 1,978 new attacks occur largely scattered throughout the limber and bristlecone pine stands and are not recommended for treatment.

The spring control job is well planned and will be carried out largely by the use of CCC labor. Falling and burning or peeling and exposing to solar heat, predators, etc., will be the methods followed. It is expected that the job will be completed before the next flight of the beetles. Effective reduction of the hot spots should, we believe, result in a material reduction in the number of trees to treat in the ponderosa pine belt.

3. Fishlake.

At the request of local Forest officers of the Fishlake Forest, Mr. Hester of the Bureau of Entomology and Plant Quarantine made an examination of several infested areas. He reports the areas small and the infestations light. The local Forest officers will take care of one job of 25 or 30 trees and have succeeded in control of another small area by sale to miners.

4. Ashley.

The Ashley has been doing some control work in ponderosa pine every year for the past 12 years. A total of 3,500 trees has been treated. In 1939 a total of 480 trees was treated and it is estimated there are still about 125 trees to treat which will be done this spring. It cannot be considered that the infestation on the Ashley is serious.

D. ponderosae.

The Bureau of Entomology and Plant Quarantine have made close checks of the Weiser, part of the Payette, the Salmon and a local

infestation on the Idaho during the past several years. Apparently there is no wide spread epidemic of large proportions though there are several local epidemics.

1. Weiser.

It is reported "there are no serious bark beetle situations within the timber stands of the Weiser". It is pointed out that there is considerable variation in the intensity of infestation and some units even have an abnormal infestation. We gather that the situation there is generally normal and about what is general throughout our overmature ponderosa pine stands. The 1939 report indicates an average loss of .5 percent per annum on 70,000 acres examined and bears out the theory that over large areas of mature or overmature timber the losses through decay, insect depredations and other factors, balance the growth.

2. Payette.

The Squaw Creek drainage of the Payette was examined in connection with the Weiser survey. It is reported that there is no serious infestation there. It also is reported that in the area adjacent to High Valley the timber is in better than usual condition.

3. Idaho.

The Bureau of Entomology and Plant Quarantine have made several examinations of a tract of ponderosa pine timber above Riggins where the young trees were being killed by the flathead borer and the mature timber by D. brevicomis. No control work was deemed advisable and the local officers report both infestations on the decline.

4. Salmon.

The Bureau of Entomology and Plant Quarantine made an extensive examination of some 83,680 acres of ponderosa pine on the Salmon in 1939. The losses range from 0 to 1.9 percent of the stand killed in 1939 with an average of .6.

Immediate action was deemed advisable on the Colson Creek area where a total of 1,236 new attacks is reported on 4,480 acres. Control has been made a CCC project and it is planned to clean up this infestation before the next flight commences.

Spring Creek is reported as "potentially dangerous" and a recheck will be made this year. The total infestation is .17 trees per acre.

On Squaw Creek some heavy local damage is reported due to logging practices which will be corrected. It is reported that "these three areas are the only situations that are alarming at this time and of sufficient importance to warrant further consideration. Check surveys of these areas will be made by the Bureau of Entomology and Plant Quarantine during October 1940".

D. pseudotsugae.

The infestation by this insect is universal throughout the range of the Douglas fir in the region and all Forests report local heavy epidemics.

No direct control such as falling, peeling and burning is being practiced but all Forests are effecting all the control possible by timber sales, administrative use, etc., of infested material to sawmills.

These statements are typical:

Uinta: "Bark beetles are very active on the Uinta in our scattered Douglas fir stands but it is not believed that control measures are warranted as most of this timber is inaccessible and inferior in quality. In Wolf Creek where we have some fine Douglas fir we have been able to get the sawmill operators to take the trees along with their regular cutting and after sawing, burn the slabs. Ranger Adair has then had the stumps peeled and this is satisfactory."

Payette: "Scattered infestations of the Douglas fir beetle occur on Big Pine Creek and along the Middle Fork of the Payette."

Idaho: "It is estimated that ten percent of the Douglas fir stand on Porphyry Creek is attacked by insects. Also a heavy attack in Douglas fir has been reported in the vicinity of Sheep Creek and on Goat Creek."

Minidoka: "With the Douglas fir, however, the case is different. Rather large areas of previously bug killed timber are present in a number of patches. These aggregate several million feet b.m. and should the present infestations increase to those proportions again the annual increment will be sharply reduced."

Teton: "About the year 1930 attacks of Douglas fir beetle were first noted in the drainages near Jackson and on the west side of Snake River south of Wilson. These have continued to spread until a considerable amount of damage has occurred. In Cache Creek approximately two

sections of mature fir have been killed. In Horse, Mosquito, and Fall Creeks and Phillips Canyon, somewhat smaller areas of timber have been attacked. These attacks have continued this season although not to greater extent than in past years. From the economic standpoint the infestation in Douglas fir is probably the most serious that we have. Much of the timber being attacked is of merchantable type and is generally quite accessible to the valley. One small mill in Jackson has been sawing bug-killed timber almost exclusively during the past eighteen months."

Caribou: "A very active insect infestation in Douglas fir has developed in the Fall Creek drainage. Approximately 1,500 acres have been infested to date in a continuous stand of mature Douglas fir timber. The timber stand surrounding the area is not solid or continuous but the infestation is taking nearly all of the mature."

Cache: "There continues to be the small patches of insect infested Douglas fir present in most areas characterized by mature stands of this species."

Challis: "As before stated, the fir beetle is widely scattered over the entire Forest."

Sawtooth: "The only area where the infestation may be increasing and where any appreciable damage is occurring, is on the west side of Redfish Lake. . . . . My impression is that such patches are increasing more than in other sections. Any great amount of damage occurring on this area would be particularly bad because of the high recreational value of this area."

Dixie: "The infestation in the Douglas fir timber continues to spread at about the same rate as in former years where there is much host material left alive."

As you are undoubtedly aware, it is the opinion of the Bureau of Entomology and Plant Quarantine that control measures of a project nature are impracticable except where values are unusually high.

D. engelmanii.

Infestations due to this insect have been reported on but two Forests - the Challis and the Teton - and both report the infestations as minor with but little damage resulting.

Hemerocampa pseudotsuga.

Two Forests report infestations due to the tussock moth. The Humboldt reports the infestations seem to be spreading in the head of Mary's River, Camp Creek, West Fork of Jarbidge River and Bear Creek. They suggest no control measures due to inaccessibility of timber and low value.

The Sawtooth reports that the attacks on the East Fork of Wood River which had been increasing rapidly have subsided. They state Mr. Evenden feels that control measures are not practical.

Minor Insects.

The Nevada mentions that Scolytus ventralis has done a slight amount of damage on the Charleston Mountain Division but recommends no control.

The Fishlake reports heavy losses in alpine fir due to Dryocoetes sp. in timber of low value with no control recommended.

The Fishlake also reports a heavy infestation in mature Engelmann spruce in the Thousand Lake region. A stand containing about three million feet of mature timber has been heavily attacked by a species of mealybug (Puto sp.). It is reported by the Bureau of Entomology and Plant Quarantine that many of the trees are dead or dying and that the living trees have very poor vigor. They plan on doing research work in connection with this infestation in an effort to determine a practical method of control. In the meantime the possibilities of construction of a wood utility road into the stand are being explored so that if practicable control measures may be undertaken or if no control measures are practicable, salvage may be made of this large amount of timber.

SUMMARY

As stated previously, the large projects are the Powell and the Wasatch. It is believed that the Powell is adequately financed except the estimates prove to be greatly in error. The Wasatch is not fully financed as indicated in previous correspondence and it is expected that the Grandaddy Lakes unit will not be placed under full control before next fall. Priority is being given the Blacks Fork unit.

Losses in Douglas fir are heavy but the recommended control measures - control by sale, administrative use, etc. - are being followed to the fullest extent possible.

Attacks by other insects are not so serious.

In all of our insect control work and problems, we have enjoyed excellent cooperation from Mr. Evenden and members of his staff at Coeur d'Alene, Idaho, and Dr. Beal and later Dr. DeLeon and members of the staff of the Forest Insect Laboratory at Fort Collins. Needless to say this cooperation is greatly appreciated.

Very truly yours,

C. M. WOODS,
Regional Forester,

By W. B. Rice Acting.

Enclosure.

R-1
FM-I.C.-1

INSECT CONTROL SUMMARY

AGENCY U. F.

Year (1)	Name of Unit (2)	Forest (3)	Duration of Project (Incl.dates) (4)	Tree Species Affected (5)	Insect Responsible (6)	Method Followed (7)	Area Treated (acres) (8)	No. Trees Treated (9)	Per Cent Trees Felled (10)	Expenditures Proj. Funds (11)	Cost.Time and Expenses (12)	Total Cost of Project (13)	Total Cost per Tree (14)	Total Cost per Acre (15)	Oil Used: Gal. per Tree (16)	No. Man Days Used (17)	Per Cent Reduction Obtained (18)	Results (19)
1927	Lake Fork	Ashley	Spring	Pond. pine	D.ponderosae	Felled and burned		254	100		$1,131	$ 1,131	$4.45			287		
1931	Lemstree	"	"	Lodge. pine	D.monticolae	Oil, felled & "	11,500	505	71	767		766	1.51	.007	—	184		Good on all treated
1931	Sage, Cottonwood, Dry Crs.	"	Fall	" "	" "	4% standing 96% felled	2,680	270	96	$ 407	164	571	2.115	.214	.481	36½		
1932	" " " "	"	May & June	" "	" "	30% standing 70% felled	7,400	726	70	1368	335	1,703	2.35	.23	1.1	257		
1932	Manila and Lake Fork	"	" " "	Pond. pine	D.ponderosae	Felled	34,860	38	100	68	40	108	2.86	.003			70% reduction	
1933	Louse Creek & Henrys Fork	"	" "	Lodge.pine	" "	Oiled, felled & burn	2,230	174	34.7	411.26	30	441.26	2.534	.1396	1.22	1044		
1933	Gilbert Creek & Smiths Fork	"	" "	" "	" "	" " "	3,520	733	15.14	2054.29	117.49	2291.68	3.12	.651	1.1	410 5/8		
1933	Manila and Lake Fork	"	" "	Pond. pine	" "	Felled and burned	8,340	48	100	34.96	31.31	118.27	2.24	.105		203		
1934	Gilbert Creek & Smiths Fk.	"	" "	Lodge.pine	D.ponderosae	Oil standing & felled	9,280	1815	77.4	4273.53	106.95	4380.78	2.41	.473	.61	1126½	75%	Reasonably successful
1934	Manila & Lake Fork	"	" "	Pond.pine	" "	Felled and burned or peeled	28,000	49	100	172.70	40	212.70	4.34	.0076	None	40	90%	" "
1934	Gilbert Creek Unit (Hire)	"	11/17-12/11	Lodgepole	" monticolae	Burned standing with oil: felled & burned	3,094	715	76-7/10	1945.67	133.66	2079.33	2.91	.67	1.03	240½		
1934	Raspberry Draw (Hire)	"	11/18-12/2	Douglas fir	D.pseudotsugae	Decking and burning with oil	6	417	100	364.92	51.06	415.98	1.00	$69.33	None	76.25		
1934	" " & Lake Fork (E.C.W.)	"	11/26-11/27 12/13-12/15	" "	" "	" " " "	15	1078	100	451.22	8.40	459.62	.43	30.64	1	350		
1935	" " (E.C.W.)	"	12/27-12/31 1/2-1/14	Limber pine	D.monticolae	" " " "	75	435	100	495.02	5.26	500.28	1.15	6.68	.96	587.75		
1934	Cottonwood Unit (Hire)	"	10/17-10/27	Lodgepole	" "	Burned standing with oil; felled & burned	2,689	421	65-4/5	975.12	108.55	1083.67	2.57	.40	.95	1674		
1935	Manila	"	5/13-5/29	Pond. pine	D.ponderosae	Felled and burned	4,300	32	100	241.79	137.26	379.05	11.845	.079	.89	1614	90%	Good
1935	Dry Creek	"	5/5 -5/26	Lodgepole	D. "	Stand. and felled	2,100	437	38	879.08	33.09	912.17	2.09	.43	.72	89-3/4	88%	Good
1935	Smiths Fork	"	5/4 -5/4	"	D. "	" " "	6,740	459	38	1320.20	44.33	1364.53	2.973	.202	.73	371	88%	Good
1936	Beaver Meadows-George's Park	"	5/1 - 6/11	Lodgepole	D.monticolae	Burned standing with oil; felled and burned	3,000	649	49.4	1711.73	75.45	1787.18	2.75	.5957	.84	118 50**	Not known until survey is made	Believed to be very good
1936	Gilbert Creek	"	1/8 - 1/14 5/7 - 5/26	"	" "	" " " " " "	2,200	332	68	1648.57	76.00	1724.57	5.19	.7834	1	383-1/2	Not known	" " " "
1936	Joulious Creek	"	11/4 - 11/16	"	" "	Decking and burning Burned standing with oil	160	560	37	757.49	26.80	784.29	1.40	4.90	1.07	120-1/2	-	-
1936	Green Lake	"	11/17 - 11/25	Pond. pine	D.ponderosae	Felled, decked and burned	6,000	45	100	394.59	-	394.59	8.77	.0657	.3	79	-	-
1935	Yellowpine, Dry Gulch, " , Point of Mtn.	"	10/15 - 12/31	" "	" "	Felled and burned	14,000	128	100	1275.00	19.78	1294.78	10.1155	.108126	1.28	776-1/2	-	-
1935	Moon Lake Unit No. 4	"	11/29 - 12/17	Limber pine	D.pseudotsuga	Felled and burned	320	225	100	487.53	32.51	520.04	2.31	1.625	.0222	156	100%	A complete clean-up
1936	Yellowpine-Lake Fk. Can.	"	5/1 - 6/25	Pond. pine	D.ponderosae	" " peeled	1,120	61	100	151.20	43.97	195.17	3.1995	.174258	-	38	-	-
1936	Bear Wallow Unit #3	"	11/5 - 11/20	Lodgepole	D.monticolae	Burned standing with oil	2,000	363	3	669.99	60.00	729.99	2.01	.36499	1.21	89	-	-
1936	Point of Lake Fk.Mtn. between Yellowstone and Lake Fork	"	11/20 - 11/30	Pond. pine	D. ponderosae	Felled and burned	1,400	13	100	275.10	15.68	290.78	22.36769	.2077	.7692	45-1/2	-	-
1938	Bear Creek, Lewis Allen Division	"	5-25 to 5-31	" "	" "	Felled and burned	50	110	100%	50.00	76.34	126.34	1.15	2.53	.091	20-3/4	100%	Good
1939	Greendale infestation	"	6-6 to 6-15	" "	" "	" " "	9,750	480	100%	FM 670.25 CCC 1083.00	168.80	1922.05	4.00	.190	.0729	156 FM 772 CCC	-	-

** C.C.C. Man Days

Exh
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INSECT CONTROL SUMMARY — FISHLAKE N. F.

Year (1)	Name of Unit (2)	Forest (3)	Duration of Project (Incl. dates) (4)	Tree Species Affected (5)	Insect Responsible (6)	Method Followed (7)	Area Treated (acres) (8)	No. Trees: Treated (9)	Percent: Trees Felled (10)	Expenditures: KRA (11)	CCC (12)	PBM (13)	Cont. Time & Expenses (14)	Total Cost of Project (15)	Total Cost per Tree (16)	Total Cost per Acre (17)	Cal. per Tree (18)	Drug: Used (19)	No. Man Days (20)	Percent Reduction Obtained (20)	Results (21)
1939	Indian Creek	Fishlake	6/6 - 6/24	P. ponderosa	D. ponderosae	Felled & burned	10	135	100	-	-	-	19.73	19.73	.15	1.973	-	-	99	Adm. Use	

INSECT CONTROL SUMMARY

Year (1)	Name of Unit (2)	Forest (3)	Duration of Project (Incl. dates) (4)	Tree Species Affected (5)	Insect Responsible (6)	Method Followed (7)	Area Treated (acres) (8)	No. Trees Treated (9)	Per Cent Trees Felled (10)	Expenditures Proj. Funds (11)	Expenditures Cont. Time and Expenses (12)	Total Cost of Project (13)	Total Cost per Tree (14)	Total Cost per Acre (15)	Oil Used Gal. per Tree (16)	No. Man Days Used (17)	Per Cent Reduction Obtained (18)	Results (19)
1938	Kyle Canyon	Nevada	4-15/7-4	P.Ponderosa & P.Flexilis	D.barberi	P.ponderosa felled and peeled. Flexilis necked and burned, small single trees burned standing with oil.	5,000	200	33	$7.50 FdM C.F.A. 195 m-days ACS 240 m-days	$250.00	969.00	4.84	.194	1.85	440	Survey not completed.	
1938	Deer Creek	Nevada	4-15/7-4	P.Ponderosa & P.Flexilis	D.barberi	P.ponderosa felled and peeled. Flexilis necked and burned, small single trees burned standing with oil.	4,200	166	33	$1.37 FdM C.F.A. 132 m-days ACS 202 m-days	$207.50	806.00	4.85	.192	1.85	368	Survey not completed.	
1938	Lee Canyon	Nevada	4-15/7-4	P.Ponderosa & P.Flexilis	D.barberi	P.ponderosa felled and peeled. Flexilis necked and burned, small single trees burned standing with oil.	5,200	402	33	$7.53 FdM C.F.A. 370 m-days ACS 502 m-days	$577.50	1850.50	4.026	.358	1.85	1,029	Survey not completed	
1939	Charleston Mtn.	Nevada	5/1-6/16	P.ponderosae " flexilis	D.ponderosae " barberi " convexifrons	Felled and burned	12,000	214	100	CCC 1231.48 FdM 480.26	205.32	1917.06	8.96	.160	-	774		

FM-I.C.-1

INSECT CONTROL SUMMARY

Year (1)	Name of Unit (2)	Forest (3)	Duration of Project (Incl. dates) (4)	Tree Species Affected (5)	Insect Responsible (6)	Method Followed (7)	Area Treated (acres) (8)	No. Trees Treated * (9)	Per Cent Trees Felled (10)	Expenditures Proj. Funds (11)	Expenditures Cont. Time and Expenses (12)	Total Cost of Project (13)	Total Cost per Tree (14)	Total Cost per Acre (15)	Gal. per Tree (16)	No. Man Days Used (17)	Per Cent Reduction Obtained (18)	Results (19)
1938	Blue Fly #1	Powell	1/3 - 3/15	PP and LD	D. ponderosae	Felling and Burning	6660	432	100	1332.20	429.71	1762.11	4.07	0.26	---	345	---	
	Park #2	"	4/1 - 4/30	"	"	"	9220	214	"	896.44	208.10	904.54	4.23	0.10	---	175	88%	
	Badger #3	"	2/15- 6/15	"	"	"	7170	1012	"	2494.80	926.20	3421.00	3.38	0.48	---	667.5	---	
	Blubber #4	"	5/20- 6/30	"	"	"	4225	758	"	1359.94	680.50	2040.44	2.69	0.48	---	399	---	
	Kanab #5	"	6/15- 6/30	"	"	"	1025	46	"	121.87	36.25	158.12	3.44	0.15	---	33	---	
	Podunk #6	"	6/1 - 6/30	"	"	"	2300	186	"	438.42	132.00	570. 42	3.07	0.25	---	113	---	
	Proctor #8	"	5/16- 6/15	"	"	"	1600	135	"	491.25	15.75	507.00	3.76	0.32	---	9-	---	
	Cameron #13	"	5/16- 5/21	"	"	"	3265	32	"	95.10	---	95.10	2.97	0.03	---	20	---	
	Pine Lake #14	"	12/26/37- 6/12/38	"	"	"	2080	1000	"	2754.00	826.00	3580.00	3.58	1.70	---	700	---	
	Sweetwater #15	"	4/16- 5/20	"	"	"	3953	258	"	862.53	259.50	1122.03	4.35	0.28	---	220	—	
	Horse Creek #16	"	4/16- 6/26	"	"	"	6520	264	"	536.52	160.10	696.62	2.64	0.11	---	135	—	
	Center Creek #17	"	6/2 - 6/12	"	"	"	1120	219	"	955.50	---	955.50	4.36	0.85	---	187	---	
	Coppumcher #23	"	4/1 - 6/15	"	D. con.exiitons	"	1090	108	"	967.44	---	967.44	8.96	0.89	---	499	---	
							50228	4,614		# 13,105.01	3674.31	16,780.32	w.3.60					
	# Includes $6,575.14 ERA, $941.04 CCC and $2,928.43 Farm Sec. Adm.																	
Fall 1938	Blubber Creek #4	Powell	10/3-12/23	P.P.	D.ponderosae	"	6,770	1,620	"	6114.29	10.80	6125.09	3.78	.95	—	1143.5		
	Horse Creek #16	"	11/14-12/22	"	"	"	2,225	678	"	2224.36	-	2224.36	3.29	1.00	—	480		
	Park #2	"	12/12-12/31	"	"	"	320	51	"	261.19	-	261.19	5.12	.82	—	71		
Spring 1939	Park #2	"	11/17-6/24	PP and DF	"	"	7,700	1,784	"	8210.00	2.70	8212.70	4.60	1.07	—	1654		
	Badger #3	"	4/12-6/24	PP	"	"	4,400	414	"	1669.00	--	1669.00	4.03	.38	—	564		
	Blubber #4	"	1/4-6/24	"	"	"	2,000	385	"	2224.00	--	2224.00	5.74	1.11	—	384		
	Sweetwater #15	"	2/1-2/27	"	"	"	4,000	220	"	2181.00	--	2181.00	9.90	.55	—	342		
	Horse Creek #16	"	1/3-2/27	"	"	"	2,100	619	"	5371.00	--	5371.00	8.70	2.55	—	847.1		
	Blue Fly #1	"	4/12-6/24	"	"	"	1,600	172	"	693.00	--	693.00	4.02	.38	—	139		
	Upper Kanab #4	"	4/12-6/24	"	"	"	1,500	143	"	578.00	--	578.00	4.04	.39	—	115		
	Podunk #6	"	4/12-6/24	"	"	"	600	59	"	240.68	--	240.68	4.08	.40	—	48		
							24,100	3.799		21166.68	2.70	21169.36				4093		
Fall 1939	Unit #7 Greens	"	11/16-12/7	"	"	"	210	31	"	165.00	17.50	182.50	5.89	.867	—	119		
	Unit #9 Sweetwater Can.	"	11/21-12/31	"	"	"	1,095	223	"	521.50	60.50	582.00	2.60	.53	—	347		
	Unit #1 Daves & Ahlstrom Hollow	"	11/6-11/22	"	"	"	Spotting only				482.40	482.40	-	-	—	46		
	Unit #4 Upper Kanab	"	10/8/12/20	"	"	"	10,685.8	2784	"	10184.08	377.00	10561.08	3.80	.99	—	2141		
	Unit #2 Blue Fly-Badger	"	12/22	"	"	"	Spotting	only		16.80	-	16.80	-	-	—	4		
							11.991	3038		10887.38	937.40	11824.78				2763		

* Number spotted same as number treated.

S-4
FM-I.C.-1

INSECT CONTROL SUMMARY

UINTA N. F.

Year (1)	Name of Unit (2)	Forest (3)	Duration of Project (Incl. dates) (4)	Tree Species Affected (5)	Insect Responsible (6)	Method Followed (7)	Area Treated (acres) (8)	No. Trees Treated (9)	Per Cent Trees Felled (10)	Expenditures: Proj. Funds (11)	Expenditures: Cont. Time and Expenses (12)	Total Cost of Project (13)	Total Cost per Tree (14)	Total Cost per Acre (15)	Oil Used Gal. per Tree (16)	No. Man Days Used (17)	Per Cent Reduction Obtained (18)	Results (19)
1933 & 1934	Noblette, Soapstone and Wolf Creek	Uinta	10-11 to 11/24 5-12 to 6/2	L. P.	Mountain pine	Burned with oil	2926	2196	75	$4,193.25	$562.12	$4755.37	$2.17	$1.63	1.41	786.75	28	
1934	Noblette, Soapstone and Wolf Creek	"	10-9 to 11-22	L.P. and limber pine	" "	" " "	4000	800	37	1,530.56	265.73	1796.29	2.24	.45	1.5	254.25	9	
1933 & 1934	Tabby Mountain	"	10-17 to 11-4 4-30 " 5-19	L. P.	" "	" " "	449	824	38.6	1,032.53	337.60	1370.13	1.66	3.05	.65	254	45	
1934	" "	"	10-15 to 11-2	"	" "	" " "	449	452	2.25	580.88	223.10	803.98	1.77	1.79	2	122.5	55	
1935	Soapstone and Wolf Creek	"	5-1 to 6-24	"	" "	" " "	2282	724	24	1,457.92	245.54	~~1702.75~~ 1903-45	~~2.35~~ 2.63	~~.75~~ .83	1.03	318.50		
1935	Dry Hollow	"	11/5,7,8,13	"	" "	" " "	199	24	25	102.66	6.36	102.66	4.28	.52	2.08	22		
1936	Noblette, Soapstone and Wolf Creek	"	5-8 - 6/28	L.P. and limber pine	" "	" " "	4136	637	35	1,402.79	1,593.99	2996.78	4.70	.72	1.40	785.50	25	
1936	Tabby Mountain	"	5-8 - 5/23	Lodgepole pine	" "	" " "	1020	531	4.1	360.80	403.22	764.02	1.44	.75	1.40	248.5	51	
1936	" "	"	11-9 - 11/23	" "	" "	" " "	875	350	16.00	768.66	29.24	797.90	2.28	.91	1.34	120.5	34	
1936	West Fork of Duchesne	"	6-19 - 6/24	" "	" "	" " "	99	64	41.00	42.36	114.00	156.36	2.44	1.57	.78	76.0		
1939	Soapstone	"	10-17 - 10-23	" "	" "	" " "	1560	69	55	19.55	295.49** (**Incl. $285.04 ERA)	315.04	4.57	.20	2.5	71		
1939	Tabby Mountain	"	9-20 - 10-6	" "	" "	" " "	640	167	22.75	32.53	322.48** (**Incl. $210.51 ERA)	355.01	2.13	.55	1.14	77		